EFED FILE COPY

MRID No. 444577-34

DATA EVALUATION RECORD
§ 72-3 - ACUTE LC_{50} TEST WITH AN ESTUARINE/MARINE SHRIMP

1. **CHEMICAL:** Prohexadione Calcium — PC Code No.: 112600

2. **TEST MATERIAL:** BAS 125 W — Purity: 90.6%

3. **CITATION:**

Authors:	W.C. Graves, J.P. Swigert, and C.M. Holmes
Title:	BAS 125 W: A 96-Hour Static-Renewal Acute Toxicity Test with the Saltwater Mysid (*Mysidopsis bahia*)
Study Completion Date:	April 14, 1997
Laboratory:	Wildlife International Ltd., Easton, MD
Sponsor:	BASF Corporation, Agricultural Products, Research Triangle Park, NC
Laboratory Report ID:	147A-147
MRID No.:	444577-34
DP Barcode:	D245631

4. **REVIEWED BY:** Karl Bullock, M.S., Environmental Scientist, Golder Associates Inc.

Signature: Karl Bullock **Date:** 7/7/98

APPROVED BY: Pim Kosalwat, Ph.D., Senior Scientist, Golder Associates Inc.

Signature: P. Kosalwat **Date:** 7/7/98

5. ~~**APPROVED BY:**~~

Signature: R. Dyson **Date:** 11/17/98

6. **STUDY PARAMETERS:**

Definitive Test Duration:	96 hours
Study Method:	Static-renewal
Type of Concentrations:	Mean Measured

7. **CONCLUSIONS:** This study is scientifically sound but does not fulfill the guideline requirements. The 96-hour LC_{50} for mysid shrimp exposed to BAS 125 W was >125 ppm ai, which classifies this compound as practically non-toxic to *Mysidopsis bahia*. The NOEC was determined to be 125 ppm ai.

Results Synopsis

LC_{50}: >125 ppm ai 95% C.I.: N/A

NOEC: 125 ppm ai Probit Slope: N/A

8. **ADEQUACY OF THE STUDY:**

A. Classification: Supplemental

B. Rationale: The age of the test mysids was not reported.

C. Repairability: Yes, if the mysids were ≤24 hours old.

9. **GUIDELINE DEVIATIONS:** The age of the juvenile mysids used in the test was not reported; the guidelines require the use of ≤24 hour old mysids.

10. **SUBMISSION PURPOSE:**

11. **MATERIALS AND METHODS:**

A. Test Organisms

Guideline Criteria	Reported Information
Species Preferred species are *Mysidopsis bahia*, *Penaeus setiferus*, *P. duorarum*, *P. aztecus* and *Palaemonetes sp.*	*Mysidopsis bahia*
Age Juvenile, mysids should be ≤ 24 hours old	Juvenile, unspecified age
Supplier	In-house culture
All shrimp are from same source?	Yes
All shrimp are from the same year class?	Yes

B. Source/Acclimation

Guideline Criteria	Reported Information
Acclimation Period minimum 10 days	Adult mysids were held at conditions similar to testing for 14 days.
Wild caught organisms were quarantined for 7 days?	N/A
Were there signs of disease or injury?	None
If treated for disease, was there no sign of the disease remaining during the 48 hours prior to testing?	N/A
Feeding No feeding during the study and no feeding for 24 hours before the beginning of the test if organisms are over 0.5 g each.	Mysids were fed live brine shrimp nauplii daily during the exposure period to prevent cannibalism.
Pretest Mortality <3% mortality 48 hours prior to testing	Not reported

C. Test System

Guideline Criteria	Reported Information
Source of dilution water Soft reconstituted water or water from a natural source, **not** dechlorinated tap water	Natural seawater pumped from the Indian River Inlet, DE, diluted to a salinity of approximately 20 % with Wildlife International Ltd. well water.
Does water support test animals without observable signs of stress?	Yes
Salinity 30-34 ‰ for marine (stenohaline) shrimp and 10-17 ‰ for estuarine (euryhaline) shrimp, weekly range < 6%	20 ‰

Guideline Criteria	Reported Information
Water Temperature Approx. 22 ± 1 °C	24.3 - 25.6°C
pH 8.0-8.3 for marine (stenohaline) shrimp, 7.7-8.0 for estuarine (euryhaline) shrimp, monthly range < 0.8	8.1 - 8.4
Dissolved Oxygen Static: ≥ 60% during 1st 48 hrs and ≥ 40% during 2nd 48 hrs, Flow-through: ≥ 60%	≥ 72% throughout test
Total Organic Carbon	1.4 mg/l
Test Aquaria 1. Material: Glass or stainless steel 2. Size: 19.6 L is acceptable for organisms ≥ 0.5 g (e.g. pink shrimp, white shrimp, and brown shrimp), 3.9 L is acceptable for smaller organisms (e.g. mysids and grass shrimp). 3. Fill volume: 15 L is acceptable for organisms ≥ 0.5 g, 2-3 L is acceptable for smaller organisms.	1. Glass 2. 2-L beakers 3. 1500 mL
Type of Dilution System Must provide reproducible supply of toxicant	N/A
Flow Rate Consistent flow rate of 5-10 vol/24 hours, meter systems calibrated before study and checked twice daily during test period	Test solutions were renewed on Day 2
Biomass Loading Rate Static: ≤ 0.8 g/L at ≤ 17°C, ≤ 0.5 g/L at > 17°C; flow-through: ≤ 1 g/L/day	1 mysid/15 mL

Guideline Criteria	Reported Information
Photoperiod 16 hours light, 8 hours dark	16 h light, 8 h dark
Solvents Not to exceed 0.5 mL/L for static tests or 0.1 mL/L for flow-through tests	None

D. Test Design

Guideline Criteria	Reported Information
Range Finding Test If LC_{50} >100 mg/L with 30 shrimp, then no definitive test is required.	Yes; A range-finding test with a negative control and nominal concentrations of 7.5, 15, 30, 60, and 120 mg ai/L resulted in 0, 0, 0, 0, 0, and 20% mortality, respectively. One lethargic mysid was observed in the 120 mg ai/L treatment.
Nominal Concentrations of Definitive Test Control & 5 treatment levels; a geometric series in which each concentration is at least 60% of the next higher one.	Negative control, 16, 26, 43, 72, and 120 mg ai/L.
Number of Test Organisms Minimum 20/level, may be divided among containers	20 per level, 10 per replicate
Test organisms randomly or impartially assigned to test vessels?	Mysids were impartially distributed to each vessel.
Biological observations made every 24 hours?	Yes

Guideline Criteria	Reported Information
Water Parameter Measurements 1. Temperature Measured constantly or, if water baths are used, every 6 hrs, may not vary > 1°C 2. DO and pH Measured at beginning of test and ever 48 h in the high, medium, and low doses and in the control	Temperature and DO were measured at test initiation and termination as well as prior to and after each renewal (old and new solutions) in all test chambers and continuously in one negative control replicate pH was measured at test initiation and termination as well as prior to and after each renewal (old and new solutions) in alternate replicate test chambers.
Chemical Analysis needed if solutions were aerated, if chemical was volatile, insoluble, or known to absorb, if precipitate formed, if containers were not steel or glass, or if flow-through system was used	Samples collected at test initiation and termination from each test chamber as well as at 48 hours from replicate A of the "old" solutions and replicate B of the "new" solutions were analyzed by HPLC.

12. **REPORTED RESULTS:**

A. General Results

Guideline Criteria	Reported Information
Quality assurance and GLP compliance statements were included in the report?	Yes
Recovery of Chemical	Average: 104-109%
Control Mortality Not more than 10% of control organisms may die or show abnormal behavior.	0% mortality in the control group
Raw data included?	Yes
Signs of toxicity (if any) were described?	No sublethal signs of test material toxicity were observed.

Mortality

Concentration (mg ai/L)		Number of Shrimp	Cumulative Number Dead			
			Hour of Study			
Nominal	Mean Measured		24	48	72	96
Control	<0.05	20	0	0	0	0
16	17	20	0	0	0	0
26	27	20	0	1	1	1
43	47	20	0	1	1	1
72	77	20	0	1	1	1
120	125	20	0	0	0	0

Other Significant Results:

B. Statistical Results

Method: Visual observation

96-hr LC_{50}: >125 mg ai/L 95% C.I.: N/A

Probit Slope: N/A NOEC: 125 mg ai/L

13. VERIFICATION OF STATISTICAL RESULTS:

Parameter	Result
Binomial Test LC_{50} (C.I.)	N/A
Moving Average Angle LC_{50} (95% C.I.)	N/A
Probit LC_{50} (95% C.I.)	N/A
Probit Slope	N/A
NOEC	125 ppm ai

14. REVIEWER'S COMMENTS: This study is scientifically sound but does not meet the guideline requirements for an acute toxicity test using *Mysidopsis bahia*. The age of the test mysids was not reported. Based on mean measured concentrations, the 96-hour LC_{50} was >125 ppm ai, which classifies BAS 125 W as practically non-toxic to mysid shrimp. The NOEC was 125 ppm ai. This study is classified as **Supplemental**.